

WHAT IS CLAIMED IS:

1. A knock control apparatus for an internal combustion engine, comprising:
a knock determiner that determines that knocking has occurred, if an
intensity of engine oscillation detected during a predetermined knock determination
5 period is equal to or higher than a predetermined knock determination level;
a retardation amount controller that controls a retardation amount of
ignition timing on the basis of a result of the determination; and
a setter that sets an end timing of the knock determination period at an
advanced timing on the basis of the ignition timing retardation amount controlled by
10 the controller.
2. The knock control apparatus according to claim 1, wherein
the setter sets the end timing on the condition that the ignition timing
retardation amount be equal to or larger than a predetermined amount.
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3. The knock control apparatus according to claim 1, wherein
the setter sets the end timing additionally on the basis of an engine
rotational speed.
- 20 4. The knock control apparatus according to claim 1, wherein
the setter sets the end timing additionally on the basis of an engine load.
5. The knock control apparatus according to claim 1, wherein
the setter sets the end timing additionally on the basis of an air-fuel
25 ratio of a mixture serving for combustion in the internal combustion engine.
6. The knock control apparatus according to claim 1, wherein
the setter sets the end timing additionally on the basis of an engine
temperature.
- 30 7. The knock control apparatus according to claim 1, wherein
the setter sets the end timing if the internal combustion engine assumes
a specific operational state.

8. The knock control apparatus according to claim 7, wherein

the specific operational state is a state fulfilling at least one of a condition that the ignition timing retardation amount be equal to or larger than a predetermined amount, a condition that the engine rotational speed be within a predetermined speed range, a condition that the engine load be equal to or higher than a predetermined load, a condition that the air-fuel ratio of the mixture be on the rich side with respect to a predetermined ratio, and a condition that the engine temperature be equal to or lower than a predetermined temperature.

9. The knock control apparatus according to claim 1, further comprising:

a changer that changes the knock determination level simultaneously with the setting of the end timing.

10. The knock control apparatus according to claim 9, wherein

the changer increases the knock determination level.

11. A knock control method for an internal combustion engine, comprising the steps of:

determining that knocking has occurred, if an intensity of engine oscillation detected during a predetermined knock determination period is equal to or higher than a predetermined knock determination level;

controlling a retardation amount of ignition timing on the basis of a result of the determination; and

setting an end timing of the knock determination period at an advanced timing on the basis of the ignition timing retardation amount controlled in the above step.

12. The knock control method according to claim 11, wherein

the end timing is set on the condition that the ignition timing retardation amount be equal to or larger than a predetermined amount.

13. The knock control method according to claim 11, wherein

the end timing is set additionally on the basis of an engine rotational speed.

14. The knock control method according to claim 11, wherein

the end timing is set additionally on the basis of an engine load.

5 15. The knock control method according to claim 11, wherein

the end timing is set additionally on the basis of an air-fuel ratio of a mixture serving for combustion in the internal combustion engine.

16. The knock control method according to claim 11, wherein

10 the end timing is set additionally on the basis of an engine temperature.

17. The knock control method according to claim 11, wherein

the end timing is set if the internal combustion engine assumes a specific operational state.

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18. The knock control method according to claim 17, wherein

the specific operational state is a state fulfilling at least one of a condition that the ignition timing retardation amount be equal to or larger than a predetermined amount, a condition that the engine rotational speed be within a predetermined speed range, a condition that the engine load be equal to or higher than a predetermined load, a condition that the air-fuel ratio of the mixture be on the rich side with respect to a predetermined ratio, and a condition that the engine temperature be equal to or lower than a predetermined temperature.

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25 19. The knock control method according to claim 17, further comprising the step of:

changing the knock determination level simultaneously with the setting of the end timing.

30 20. The knock control method according to claim 19, wherein

the knock determination level is increased.